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JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

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March, 1915.

No. 194.

WASHINGTON AND MICHHAUX.

C. S. SARGENT.

THE first part of André Michaux's Journal of his travels in North America, covering the time from his arrival in this country in 1785 until his first visit to South Carolina in 1787, was unfortunately lost in the wreck of the ship in which Michaux returned to France, and little of his movements in the first years of his visit is known beyond the fact that he established a nursery in the neighborhood of New York from which he sent seeds and a large number of seedling trees back to France. The fact that during this time he paid a visit to Washington at Mt. Vernon seems to have generally escaped notice. The following extracts from Washington's unpublished Diary, now in the Library of Congress, may therefore be of interest to American botanists:

Monday, June 19, 1786.

"A Monsr. André Michaux, a Botanist sent by the Court of France to America (after having been only 6 weeks returned from India) came in a little before dinner with letters of introduction and recommendation from the Duke de Lauzen and Marqs. de la Fayette to me — he dined and returned afterwards to Alexandria, on his way to New York, from whence he had come; and where he was about to establish a Botanical Garden."

Thursday, June 29.

"Planted in one row between the Cherokee Plum and the honey locust, back of the No. Garden adjoining the green House (where the Spanish Chestnuts had been placed and were rotten) 25 of the Paliurus,

very good to make hedges and inclosures for fields — Also in the section between the Work House and Salt House, adjoining the Pride of China Plants, and between the rows in which the Carolina laurel seeds had been sowed, 46 of the Pistatia nut in 3 rows — And in the places where the Hemlock pines had been planted and were dead, Et. & Wt. of the Garden gates, the seeds of the Piramidical Cypress 75 in number — all of which with others were presented to me by Mr. Michaux, Botanist, to his Most Christian Majesty.”

July 1st.

“Planted 4 of the Ramnus Tree (an evergreen) one on each side of the Garden gates — a peg with 2 notches drove down by them (Pegs No. 1 being by the Pyramidal Cypress) — also planted 24 of the Philirea latifolio — (an evergreen shrub) in the Shrubberies by Pegs No. 3 — and 48 of the Cytire — a tree produced in a cold climate of quick growth, by pegs No. 4 — All these plants were given to me by Mr. Michaux.”

ARNOLD ARBORETUM.

NOTES ON THE GENUS SABATIA.

S. F. BLAKE.

(Plate 112.)

1. **SABATIA DIFFORMIS** (L.) Druce (*S. lanceolata* (Walt.) T. & G.).—
Swertia difformis L. Sp. i. 226 (1753). *Chironia lanceolata* Walt. Fl. Car. 95 (1788). *Sabbatia corymbosa* Baldw. ex Ell. Sk. i. 283 (1817). *Sabbatia lanceolata*¹ (Walt.) T. & G. ex Gray, Man. ed. 1. 356 (1848). *Sabbatia difformis* (L.) Druce, Bot. Exch. Club Rep. 1913, iii. pt. 5, 422 (1914), as to name-bringing synonym only.—The Clayton type of *Swertia difformis* L., which was based on Gronovius’s “*Gentiana foliis linearibus acuminatis, pedunculis longissimis nudis unifloris oppositis*” (Fl. Virg. ed. 1. 30 (1739)), is in the British Museum and

¹ The name *Sabbatia lanceolata* first occurs in Raf. Fl. Tell. iii. 30 (1836), but is there merely a nomen without synonym.

consists of the uppermost portion of a specimen of the plant which has long been known as *Sabbatia lanceolata* (Walt.) T. & G., with long opposite linear-filiform-bracted one-flowered peduncles, linear-subulate slightly fleshy calyx-lobes 4–6 mm. long, flowers all 5-parted except the terminal which is 6-parted, and oblong-lanceolate acutish petals 11–12 mm. long (white, according to Clayton). The sheet is marked “D. Clayton ex Virginia, *Swertia corollis quinquefidis, terminali sexfida, pedunculis longissimis, foliis linearibus*, Linn. Sys. gen. 284, n. 2”; below is another label, crossed out on the sheet, similar except that the reference is to “Linn. Spec. 226” instead of to the Genera. Although the specimen does not bear Clayton’s number 171, cited by Gronovius for the species, it may safely be taken as type in view of its entire agreement with the very definite points of the Gronovian and Linnaean descriptions. The name *Sabatia difformis*, taken evidently from the inconstant difference in number of parts of the lateral and terminal flowers, must accordingly replace *S. lanceolata*. *Swertia difformis* L. has long been referred with more or less doubt by authors to *Sabatia Elliottii* Steud., although its published character of “pedunculis . . . oppositis” should have prevented such confusion, since *S. Elliottii* (*S. paniculata* Ell., not Pursh) belongs to the group with alternate branches. Its identity with *S. lanceolata* was however long ago noted by Grisebach in A. DC. Prod. ix. 49 (1845), probably following Pursh, Fl. i. 138 (1814), who says: “This [i. e. *S. paniculata* (Michx.) Pursh, with the varieties α . *latifolia* Pursh (= *C. lanceolata* Walt., *Sw. difformis* L.) and β . *angustifolia* Pursh (= *S. paniculata* as now restricted)] certainly is the long lost *Swertia difformis*, as the specimens in the Herbarium of Clayton, now in possession of Sir Joseph Banks, sufficiently prove.” What the “specimens” were, other than the one under discussion, is not evident, but the use of the plural may have been simply another slip on the part of Pursh. Certainly this specimen is the only one of Clayton’s few *Sabatias* now extant which Pursh could by any possibility have referred to his *S. paniculata*.

The name *Sabatia* (*Sabbatia*) *difformis* has recently been published by Druce, in a long list of new combinations among which American botanists will be somewhat surprised to discover *Nemopanthus mucronata* [(L.) Trel. 1892] and *Chiococca alba* [(L.) Hitch. 1893] indicated as new, among others; but his unfortunate failure to examine the type of the species leads him to identify the name with *S. Elliottii*

Steud., with which, despite the reference in the Index Kewensis, it has no connection whatever.

2. *SABATIA CAMPANULATA* (L.) Britton (*S. gracilis* (Michx.) Salisb.). — *Chironia campanulata* L. Sp. i. 190 (1753). *Chironia gracilis* Michx. Fl. i. 146 (1803). *Sabbatia gracilis* (Michx.) Salisb. Par. Lond. t. 32 (1806). *Sabbatia campanulata* (L.) Torr. in Griseb. Gentian. 120 (1839), as syn.; Britton, Mem. Torr. Club, v. 259 (1894). — The name *Sabatia campanulata* has been in use by many American botanists for some years, but in the seventh edition of Gray's Manual, 655 (1908) the name *S. gracilis* is employed, and *S. campanulata* Torr. is referred to it with a mark of interrogation, presumably following the Synoptical Flora, ii. pt. 1. 115 (1878). Dr. Gray's hesitation to adopt Linnaeus's name seems to have been due chiefly to the fact that the habitat of the plant was given as "Canada" in the Species Plantarum. No locality is indicated on the type sheet in the Linnaean Herbarium, however, and a specimen from Kalm, perhaps a cotype, in the Leche Herbarium now incorporated in the British Museum collections, is marked simply "America," so that Linnaeus's reference of the species to Canada is obviously an error, due doubtless to the fact that so large a proportion of Kalm's plants came from Canada. The specimen from the Leche Herbarium is also authentic for *S. gracilis* Salisb., as it bears the name "gracilis Michx." followed by Salisbury's initials. Both sheets represent *S. gracilis* of Gray's Manual, a name which must be replaced by *S. campanulata*. The large-flowered variety from Florida should take the name *SABATIA CAMPANULATA* (L.) Britton, var. **grandiflora** (Gray) Blake (*Sabbatia gracilis* Salisb., var. *grandiflora* Gray, Syn. Fl. ii. pt. 1, 115 (1878). *Sabbatia grandiflora* (Gray) Small, Fl. S. E. U. S. ed. 1. 928 (1903)).

In Small's Flora the characters of *S. campanulata* and *S. stellaris* appear to be interchanged, so far as may be gathered from the somewhat contradictory key and descriptions. In the key to species (p. 927) *S. stellaris* is said to have "calyx-lobes fully as long as the corolla," which would indicate *S. campanulata*; but in the description we find: "calyx glabrous; lobes narrowly linear, 8–12 mm. long, acute, fully $\frac{1}{2}$ as long as the corolla-lobes"; and again in the same sentence: "corolla pink or white; lobes oblong or oblong-spatulate, rarely surpassing the calyx-lobes." *S. campanulata* according to the key has corolla lobes 1–1.5 cm. long; but the description reads: "calyx glabrous; lobes . . . 8–12 mm. long; corolla . . . lobes . . . about twice as long as the calyx-lobes."

3. *SABATIA FOLIOSA* Fernald (*S. Harperi* Small). After examining cotypes of both these species, I have been unable to discover sufficient difference between the two to warrant their separation. *S. foliosa* was originally described (Bot. Gaz. xxxiii. 155 (1902)) as having "leaves . . . lanceolate to oblong-lanceolate . . . 2.5 to 6 cm. long, 0.5 to 1.2 cm. broad," "calyx with lanceolate foliaceous lobes 1.2 to 2 cm. long," and "corolla . . . with . . . oblanceolate remote lobes 1.3 to 2.5 cm. long." The species was based primarily on Curtiss 5928 from Florida, but to it were also referred plants collected by J. D. Smith in South Carolina. Later, Harper (Bull. Torr. Club, xxx. 338 (1903)) reported it from Georgia (*Harper* 964, 1196), his specimens being identified by Fernald. On these two numbers Small's *S. Harperi* (Fl. S. E. U. S. 928, 1336 (1903)) was based. The diagnostic characters of the two supposed species, as indicated by Small's descriptions, are as follows: *S. Harperi*: "leaf-blades lanceolate or oblong-lanceolate . . . 1.5–3.5 cm. long . . . partly clasping . . . calyx . . . lobes slightly broadened upward, about $\frac{1}{2}$ as long as the corolla . . . : corolla . . . lobes . . . 1.5–2.5 cm. long." *S. foliosa*: "leaf-blades . . . linear-oblong to linear-lanceolate or almost linear, . . . 2–6.5 cm. long, . . . sessile . . . : calyx . . . lobes linear, . . . as long as the corolla or nearly so . . . : corolla . . . lobes 1.2–2.5 cm. long." The non-existence of the differential characters here adduced is shown by the following notes taken from an examination of *Harper* 964 (cotype of *S. Harperi*, in British Museum) and *Curtiss* 5928 (cotype of *S. foliosa*, in Kew Herbarium). *Harper* 964: leaves (middle and upper) oblong to oblong-lanceolate, slightly clasping, 2.5–3.5 cm. long, 8.5–15 mm. wide; calyx-lobes spatulate-linear, broadened upwardly, 13.5–15 mm. long, 1.4–2 mm. wide; corolla-lobes 14.5–17.5 mm. long (corolla including tube 2.1 cm. long). *Curtiss* 5928:¹ leaves narrowly oblong to narrowly oblong-lanceolate ("linear-oblong to . . . almost linear," Small, l. c.), 3.8–5.3 cm. long, 8.5–10.5 mm. wide; calyx-lobes spatulate-linear, broadened upwardly, unequal, 10.5–20 mm. long, 1.8–3.3 mm. wide; corolla-lobes 15–16 mm. long (whole corolla 2 cm. long). Since neither the alleged differences in leaves or those in calyx are borne out by cotypes of the two species concerned, *S. Harperi* must be relegated as a synonym to *S. foliosa*, which has a year's priority.

¹ These measurements are taken from a well-developed specimen. An undeveloped one-flowered plant 1.3 dm. high has calyx-lobes 9.5–10 mm. long, and ovate-oblong middle leaves 2–2.2 cm. long, 5–7 mm. wide.

4. **SABATIA obtusata** n. sp., perennis valde stolonifera caule erecto leviter biangulato simplice vel subsimplice 2–2.5 dm. alto univel bi-floro; foliis infimis oblanceolatis vel spathulatis subacutis 2.5–3.5 cm. longis 3–7 mm. latis; caulinis tenuibus ca. 12-jugis oblongis vel ovalibus apice rotundatis sessilibus non amplectentibus 1.5–2.5 cm. longis 3.5–10 mm. latis internodia subaequantibus, costa basi incrassata albida venis lateralibus 1–2-jugis inconspicuis; pedunculis 1–3.5 cm. longis; calycis tubulo subscarioso ca. 20-nervio 1.5–2.5 mm. alto, laciiniis 9–10 linear-lanceolatis acutis trinerviis planis sursum paullum ampliatis 5–11 mm. longis 0.6–1.6 mm. latis; corollae laciniis 9–10 cuneato-lanceolatis obtusis roseis basi macula aurea rubro-marginata praeditis 1.2–2.2 cm. longis 3–6 mm. latis; stylo 2 mm. longo; stigmatibus 6 mm. longis.

Erect stoloniferous perennial, usually simple, one- or two-flowered, 2–2.5 dm. high; lowest leaves oblanceolate to spatulate, subacute, 2.5–3.5 cm. long, 3–7 mm. broad; stem-leaves thin, about 12 pairs, oblong or oval, rounded at tip, sessile but not clasping, about equalling the internodes, 1.5–2.5 cm. long, 3.5–10 mm. broad, the midrib whitish and conspicuous, the 1–2 pairs of lateral veins obscure; peduncles 1–3.5 cm. long; calyx-tube subscarious, about 20-nerved, 1.5–2.5 mm. high; the segments 9–10, lance-linear, acute, slightly broadened upwardly, flat, 3-nerved, 5–11 mm. long, 0.6–1.6 mm. broad; corolla-lobes 9–10, wedge-lanceolate, obtuse, rose-color with a red-bordered golden eye, 1.2–2 cm. long, 3–6 mm. broad; style 2 mm. long; stigmas 6 mm. long.

GEORGIA: shallow water near Lumber City, 18 July 1905, *Biltmore Herbarium* (TYPE SHEET in British Museum).

A rather strongly marked new *Sabatia*, distinguished at once by its very short round-tipped leaves about equalling the internodes; related to *S. dodecandra* (L.) BSP., from which it differs in its leaves and lower simple freely stoloniferous stem; and to *S. foliosa* Fernald (*S. Harperi* Small), which has lanceolate to lance-oblong, subobtuse and slightly amplexicaul leaves, 2.5–6 cm. long, and considerably longer calyx-lobes (mostly 1.2–2 cm. long).

5. **SABATIA capitata** (Raf.) n. comb. (*S. Boykinii* Gray).—*Pleienta capitata* Raf. Fl. Tell. iii. 30 (1836). *Sabbatia Boykinii* Gray in Chapm. Fl. S. E. U. S. ed. 1. 354 (1860). *Lapithea Boykinii* (Gray) Small, Fl. S. E. U. S. ed. 1. 929 (1903).—Rafinesque's *Pleienta capitata*, described from the Unaka and Cherokee Mountains along the Tennessee-North Carolina border, close to Whitfield County, Georgia, where *Sabatia Boykinii* has been collected, is evidently identical with the latter species. Rafinesque's description, published in the rare Flora Telluriana, may be quoted: "498. *Pleienta capitata* Raf. caule

rigido tereto bisulcato, fol. remotis obl. lanceol. acutis uninervis, inferis ellipt. fl. term. capit. involucr. sub 8 andris, cal. lanceol. cor. brevoir, lac. cor. spatul. obt.—*Unaka* and *Cherokis* mts. very distinct sp. next to *Pl. gentianoides*, leaves uncial, fl. white or incarnate in sessile heads of 3 to 5, involucre of 4 leaves" (Raf. l. c. 30–31). The following specimens have been examined: GEORGIA: eastern base of Dick's Ridge, alt. 305 m., Whitfield Co., 27 July 1900, *P. Wilson* 142 (Br. Mus.); woods east of Taylor's Ridge, alt. 350 m., Whitfield Co., 26 July 1900, *P. Wilson*, 134 (Kew); near Pigeon Mt., alt. 595 m., Walker Co., 1 Aug. 1900, *P. Wilson* 172 (Kew); ALABAMA: Blount Co., Oct. (fruiting), *Rugel* (Br. Mus.). There are also two specimens without locality from Schweinitz in Kew Herbarium, bearing an unpublished name indicating the same habitat as that originally ascribed by Rafinesque to the species. Gray's *S. Boykinii* was based on specimens collected by Dr. Boykin in "middle Georgia." The plant has not been collected in Tennessee in recent years, and it is not improbable that Rafinesque's specimens came from Georgia. Harper has reported it (Bull. Torr. Club, xxviii. 478 (1901)) from Alabama (*Pollard & Maxon*) and from several localities in northwestern Georgia.

6. Rafinesque's genus *Pleienta*¹ (l. c. 30 (1836)) included the *Sabatias* with 7–12-merous flowers, and had as "type the *Chl. dodecandra* L." It is thus strictly synonymous with *Sabatia* Adans. (Fam. ii. 503 (1763)), based on the "Gentiana floribus duodecim petalis, foliis distinctis" of Gronovius (Fl. Virg. ed. 1. 29 (1739)), which is *S. dodecandra* (L.) BSP. The *Pl. gentianoides* with which Rafinesque compared his new species *Pl. capitata* is evidently *Sabatia gentianoides* Ell., for which together with *S. Boykinii* (i. e. *S. capitata*) the genus *Lapitheia* Griseb. is maintained by some. This was first proposed as a section (*Pseudochironia*) of *Sabatia* by Grisebach in 1839, founded on *S. gentianoides*, and characterized by "Antherae uno cyclo tortae, speciosae! Flores subsessiles, capitati," in opposition to the section *Eusabbatia*, including the other species of the genus, with "Antherae demum recurvae. Flores pedicellati, aut paniculati, aut caule dichotomo solitarii." In Grisebach's revision of the family in the *Prodromus* the section was raised to generic rank as *Lapitheia*,

¹ "497. *PLEIENTA* Raf. (more added) *Sabbatia* Ad. non alis. diff. 496, cal. 7–12part. stam. 7–12 stylo sepe recto &c.—Although this G. chiefly depends on extra numbers, it is a very natural one, prolific also of Amer. sp. It chiefly differs from *Chlora* by the unequal calix. Type the *Chl. dodecandra* L. which included 12 blended sp. see my monograph N. Sp. *Pl. leucantha*, *rigida*, *flexuosa*, *fasciculata*, *capitata*, &c."

which is retained in *Bentham & Hooker's Genera Plantarum* and in *Small's Flora*. It seems to the writer that the differences in anthers and inflorescence are not sufficient to justify the maintenance of *Lapitheia* as a genus, but that the group is better treated as of subgeneric value. The genus may be further divided into sections and subsections in the following manner:

SYNOPSIS OF SABATIA ADANS.

Subg. I. **Eusabatia** (Griseb.) n. comb.—*Sabbatia* sect. *Eusabbatia* Griseb. Gentian. 120 (1839).—Flowers solitary, scattered, or cymose-panicked, pedunculate. Anthers recurved or spirally coiled.

Sect. 1. **Pentapetala**. Floribus 5(rare 6–7)-meris minoribus. Type-species *S. angularis* (L.) Pursh.

Subsect. A. **Angulares**. Ramulis oppositis; calyce non costato.

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|------------------------------------|---|
| 1. <i>S. macrophylla</i> Hook. | 4. <i>S. paniculata</i> (Michx.) Pursh. |
| 2. <i>S. angularis</i> (L.) Pursh. | 5. <i>S. brachiata</i> Ell. |
| 3. <i>S. difformis</i> (L.) Druce. | |

Subsect. B. **Campanulatae**. Ramulis alternis; calyce non costato.

| | |
|--|--|
| 6. <i>S. Elliottii</i> Steud. | 9. <i>S. simulata</i> Britton. |
| 7. <i>S. stellaris</i> Pursh. | 10. <i>S. Purpusii</i> Brandegee. ¹ |
| 8. <i>S. campanulata</i> (L.) Britton | 11. <i>S. Palmeri</i> Gray. |
| 8b. " " v. <i>grandiflora</i> (Gray) Blake. | 12. <i>S. maculata</i> (Benth.) Benth & Hook. |
| | 13. <i>S. calycina</i> (Lam.) Heller. |

Subsect. C. **Campestres**. Ramulis alternis; calyce valde costato.

| | |
|--------------------------------|---------------------------------|
| 14. <i>S. campestris</i> Nutt. | 16. <i>S. arenicola</i> Greenm. |
| 15. <i>S. carnosa</i> Small. | |

Sect. 2. **Pleienta** (Raf.) n. comb. Floribus 8–12-meris majoribus.—*Sabbatia* subg. *Plurimaria* Raf. Med. Fl. ii. 76 (1830) in part; *Pleienta* Raf. Fl. Tell. iii. 30 (1836), in part.

| | |
|--------------------------------|--|
| 17. <i>S. foliosa</i> Fernald. | 19. <i>S. dodecandra</i> (L.) BSP. |
| 18. <i>S. obtusata</i> Blake. | 20. <i>S. decandra</i> (Walt.) Harper. |

Subg. II. **Pseudochironia** (Griseb.) n. comb.—Flowers sessile in terminal and axillary bracteate heads of 1–7. Anthers slightly twisted laterally.—*Sabbatia* sect. *Pseudochironia* Griseb. Gentian. 125 (1839). *Lapitheia* Griseb.

¹ Perhaps not distinct from *S. Palmeri*, of which no specimen has been available for comparison.

in A. DC. Prod. ix. 48 (1845). *Sabbatia* subg. *Plurimaria* Raf. l. c. in part.
Pleienta Raf. l. c. in part.

21. *S. gentianoides* Ell.

22. *S. capitata* (Raf.) Blake.

LONDON, ENGLAND.

EXPLANATION OF PLATE 112.

Fig. A. *Sabatia difformis* (L.) Druce. 1. Type, $\frac{1}{2}$ nat. size. 2. Flower, about $1\frac{1}{2}$ nat. size. (British Museum.)

Fig. B. *S. campanulata* (L.) Britton. Type, $\frac{1}{2}$ nat. size. (Linnaean Herbarium.)

Fig. C. *S. obtusata* Blake. 1. Type, $\frac{1}{2}$ nat. size. 2. Calyx, about $1\frac{1}{2}$ nat. size. (British Museum.)

CAREX TUCKERMANI NIAGARENSIS; A NEGLECTED SEDGE.

C. P. SMITH.

WHILE in Niagara county, New York, in the summer of 1911, I collected a variety of *Carex* which is not, at least to my satisfaction, accounted for in our present-day floras. Every effort to determine the form led to *C. Tuckermani* Dewey; but from that species, as illustrated and described, this plant differs in certain apparent characters. Accordingly, after referring to the original description and illustration, and examining the material in the *C. Tuckermani* covers of the Cornell University and the U. S. National Herbaria, I have decided to make record of the plant as follows:

CAREX TUCKERMANI *niagarensis* var. nov. a forma typica differt culmis late patentibus; spicis nutantibus, deorsum floribus plus minusve laxis; perigyniis latissime ovoideis vel deltoideis, basi plerumque obliquis planisque.

Differs from the typical form in its widely spreading culms, nodding spikes with flowers more or less scattered below, triangular-ovoid, deltoid, or even rhomboidal perigynia with the base commonly oblique or truncate.

My No. 2438, 27 August, 1911, Youngstown, N. Y., is taken as the type collection. No. 2554 is also typical, being from "West Hill," Ithaca, N. Y., 28 June, 1912, matured akenes having been subsequently

secured on July 22. Various other herbarium specimens indicate frequent occurrence of this variety in Western New York, and its general distribution must be more or less the same as that of the species, if I am justified in crediting to var *niagarensis* the U. S. National Herbarium sheets numbered and labeled as follows:

- 30410 — H. P. Sartwell, Penn Yan, N. Y.
- 295054 — F. V. Coville, 10 June 1884, Oxford, N. Y.
- 134251 — L. F. Ward, August 1879, Indian River, N. Y.
- 242817 — A. P. Garber, 25 July 1868, Greenville, Mercer county, Pa.
- 239176 — J. Fowler, 16 August 1881, Sharrott Lake, Ont.
- 605631 — J. Fowler, 26 July 1902, Plevna, Ont.
- 30407 — F. F. Wood, 28 June 1889, bank of Bad River, Wis.
- 30602 — F. F. Wood, 13 August 1891, Barron, Wis.
- 131962 — M. S. Bebb, 1870, Fountain, Ill.
- 30408 — C. A. Ballard, July 1893, Lake Kilpatrick, Minn.

Pressed young material can evidently not be determined, as many

June, and even some July, collections do not seem to have the perigynia matured enough to show determinative characters after being pressed; e. g., of three sheets of Sartwell's specimens in the National Herbarium, I care to cite only one as showing evidence of representing the variety I describe. The original illustration of Dewey's seems to have been made from very young material and can easily confuse one in trying to study the species in its matured forms.

My only collection which I am willing to call typical *C. Tuckermani* was found in a water-shed bog a short distance north of Summit Marsh, North Spencer, Tioga county, N. Y., and is my No. 2583,

6 Aug., 1912. A normal perigynium from this collection is represented at "c" in the figures herewith. An occasional perigynium of these specimens approaches the deltoid shape, however.

The species is designated as a plant of "wet meadows" (Dewey),



Fig. 1. Spike of
C. Tuckermani niagarensis. $\times \frac{3}{2}$.

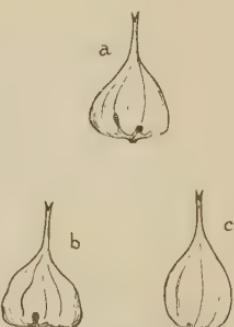


Fig. 2. Perigynia $\times 2$
a & b. *C. Tuckermani niagarensis*. c. *C. Tuckermani* (typical form).

of "bogs and meadows" (Britton & Brown), and of "rich alluvial shores, rarely in swamps" (Grays Manual, 7th ed.). The var. *niagarensis*, where observed by me, was a resident of level, poorly-drained, open woodland and thickets, confined to edges of vernal pools and depressions where moisture lingers well into the hot days of summer, but where the surface soil-layers dry out and crack before the akenes are mature.

My drawings are from specimens preserved unpressed especially for this purpose, all from the type material of the variety herein described, excepting the perigynium marked "c," referred to above.

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THE NAME OF THE HEMLOCK SPRUCE.

ALFRED REHDER.

UNDER the title "The correct name of the hemlock spruce" an interesting article by Oliver A. Farwell appeared in the December number of the Bulletin of the Torrey Botanical Club (Vol. XLI, 621–629). As I cannot agree with some of the statements made by the author and particularly with his conclusion that the correct name of the Hemlock Spruce ought to be *Tsuga americana*, I venture the following remarks to show that the name *Tsuga canadensis* for this tree should be retained.

In fixing the type of *Pinus canadensis* Linnaeus (*Spec. Ed.* 2, 1421) one has to consider that the diagnostic phrase is taken nearly literally from the synonym of Gronovius. This shows as clearly, as if Linnaeus had expressly designated the Gronovian plant as the type of his species, that his *Pinus canadensis* is based primarily on the plant described by Gronovius; that this is the Hemlock Spruce there can be no doubt, as Farwell himself admits. To Farwell's further deductions, however, I cannot subscribe; he says: "If we take the first synonym enumerated under a species in case no type is specifically named, then *Pinus canadensis* becomes a pure synonym of *Pinus balsamea* Linnaeus, for the first synonym cited under both species is the same Gronovian

species which is the Hemlock Spruce." According to the Philadelphia Code, the taking of the first synonym as the type is only resorted to when there is no other way to determine the type, but this is not so in this case, for, we find that here again Linnaeus indicates in his diagnostic phrase what he considers the type of his *Pinus balsamea*; that phrase is abstracted from the detailed description of the leaves of his species and not from any of the synonyms, as in none of them is any mention of subemarginate leaves or of their two white lines beneath. By reading carefully Linnaeus' description and taking into consideration the geographical distribution he attributes to his species we must come to the conclusion that he had in mind a true Fir, and as there are only two species, namely *Abies balsamea* and *Abies Fraseri* native to eastern North America and as the latter was not known at that time, no botanist having then penetrated to the higher altitudes where *Abies Fraseri* grows, Linnaeus could have meant no other species but *Abies balsamea*. From the detailed description he gives we may assume that he had specimens before him, either from a cultivated tree or from the collection brought back by Kalm who may have come across this species during his travels. Also the specific name "balsamea" shows that he got his information elsewhere and not from the synonyms where no reference to "balsam" occurs. I cannot understand how Farwell can assert that "there is absolutely nothing in the descriptive matter that will limit it to any species." The comparison with *Pinus Picea* excludes the Spruces and the description of the leaves as broader than those of the Silver Fir excludes the Hemlock Spruce, and neither *Tsuga canadensis* nor any of the Spruces have the white bands of the underside of the leaves composed of 8 rows of stomata; the former has only 5 or 6 and the Spruces even less, while *Abies balsamea* has indeed usually 8 rows of stomata.

Miller adopted binomial nomenclature in the 8th edition of his Dictionary and gave specific names under *Abies* to four American species which he had already distinguished but not specifically named in 1759 in the 7th edition of his Dictionary. In transferring the Linnaean specific names from *Pinus* to *Abies* he made the mistake, if it really was his intention to transfer the names, of transferring the name *canadensis* to the previously unnamed species No. 5 of the 7th edition, probably because this number was placed by Linnaeus as a synonym under his *Pinus canadensis*, and of creating a new name for No. 3 which ought to have been called *A. canadensis* according to the

rule of priority. That Miller used the name *canadensis* for the White Spruce does not change the fact that *canadensis* is the oldest specific name for the Hemlock Spruce, since the Hemlock Spruce is the type of *P. canadensis*, as shown above, and since no subsequent author can change the type of a species previously described. Farwell asserts that Miller in splitting *Pinus canadensis* into two species could choose, if the names are of the same date, and that his choice could not be modified according to article 46 of the International Code. Now article 46 reads: "When two or more groups of the same nature are united, the name of the oldest is retained. If the names are of the same date, the author chooses and his choice cannot be modified by subsequent authors." As the wording shows this article does not refer to the division of species, but to the union of two or more species under one name. In article 47 which deals with the division of a species, nothing is said about the right of the author to choose, but the article rules that "if one of the forms was described earlier than the other, the name is retained for that form.

Therefore taking as proved that the type of *Pinus canadensis* is the Hemlock Spruce, "*canadensis*" remains the correct specific name for this tree and Miller's specific appellation is a non-valid¹ name having been formed contrary to the rules of nomenclature. More doubtful seems the validity of Miller's *Abies canadensis*, but as Miller does not quote *Pinus canadensis* Linnaeus as a synonym, *Abies canadensis* Miller may be considered a new name, and as the White Spruce had no earlier binomial appellation *canadensis* must stand as the oldest specific name, though the presence of an earlier homonym, viz. *Pinus canadensis* L., precludes the use of this specific name for the White Spruce, if transferred to the genus *Pinus*, and on the other hand the specific name "*canadensis*" cannot be used for the Hemlock Spruce, if transferred to the genus *Abies*, on account of the older *Abies cana-*

¹ The terms valid and non-valid have often been used indiscriminately for names which have become synonyms both for taxonomic or for nomenclatorial reasons. They should, however, be used for names only which belong to the latter category. This is made clear by the revised article 56 of the International Code (Act. Congr. Intern. Bot. Bruxelles 1910, I. 107) which reads: "Dans les cas prévus aux articles 51 à 55 le nom à rejeter ou à changer est remplacé par le plus ancien nom valable existant pour le group dont il s'agit et à défaut de nom valable ancien un nom nouveau (un binôme nouveau) doit être créé. Par nom valable on entend ici un nom et en particulier une combinaison de noms créés en conformité avec l'ensemble des règles de la nomenclature." A non-valid name always remains a synonym while a name which has become a synonym by change of generic or specific limitations may be revived at any time by another change in the taxonomic valuation of genera or species. A non-valid name, therefore, may be termed an unconditional synonym while a synonym for taxonomic reasons is a conditional synonym.

densis Miller.¹ If, however, one takes the view that *Abies canadensis* is not a valid name (see footnote on the preceding page), as it is against the rules of nomenclature in so far as Miller should have used this combination for the Hemlock Spruce, the oldest name for the White Spruce would be *Picea glauca* Voss in Mitt. Deutsch. Dendr. Ges. XVI. 93. 1907. (*Pinus glauca* Moench, Verz. Schloss Weissenstein, 73. 1785.—*Pinus laxa* Ehrhart, Beitr. III. 24. 1788.—*Pinus alba* Aiton, Hort. Kew III. 371. 1789.)

ARNOLD ARBORETUM.

FLORA OF THE VICINITY OF NEW YORK, A CONTRIBUTION TO PLANT GEOGRAPHY.—This "flora," by Norman Taylor,² will interest field-botanists of New England, for the area covered includes all of Connecticut as well as southeastern New York, all of New Jersey, and eastern Pennsylvania; and much emphasis is given to some of the geographic relations of the flora covered. The author's attitude is indicated by the statement in the Preface: "The attempt to explain the origin of the flora centering near the city, and the factors that have played their part in shaping its present composition, has, it seems to the writer, greater value than any enumeration of the species could possibly have." The author is modest in his approach to a vast question and, like most of those who enter such problems, has felt the handicap of too limited material for sound generalizations, saying: "no one is so conscious of the scarcity of such material as the writer. The book, therefore, is not so much a local flora as a method of writing one,—in some ways it is little more than a record of the incompleteness of our present knowledge."

As would naturally be expected, "the taxonomy and nomenclature have been brought into substantial accord with the second edition" of Britton & Brown's *Illustrated Flora*;³ but the author expresses a

¹ The combination *Abies Picea* Miller presents a case very similar to that of his *Abies canadensis*. If *A. canadensis* is considered a valid name, *Abies Picea* Miller must be considered a valid name also, for the oldest specific name for *Pinus Abies* cannot be used, as it would duplicate the name of the genus which is against art. 51, 2 of the International code, and a new specific name was necessary for which Miller chose *Picea*. In this case it is quite clear that it was not Miller's intention to transfer the Linnean name from *Pinus* to *Abies*, and the same may have been the case with *Pinus canadensis* L.; we may, therefore, in both cases consider Miller's names as new names. This will prevent the use of the name *Abies Picea* Lindley in Penny Cycl. I. 29 (1833) for the European Silver Fir for which the oldest name would then be *Abies alba* Miller, Dict. Ed. 8, no. 1. 1768. (*Abies pectinata* De Candolle, Fl. Franc. III. 276. 1805, not Gilibert, nor Poiret).

² Memoirs of the New York Botanical Garden, Vol. V. by Norman Taylor, pp. vi + 683. Issued January 30, 1915.

³ See RHODORA, xv. 220 (1913).

certain degree of independence in his statement that, "This does not imply, however, that the writer favors all the generic and specific delimitations of that work, nor all the nomenclatorial changes there proposed." What a pity that this healthy spirit of scientific freedom could not have found fuller expression, at least by a brief note, whenever the author felt sure of his own convictions! In a very few instances this has been done, as, for example, when *Bidens Beckii* is retained in *Bidens* instead of separated as a genus *Megalodonta*, as is done in the *Illustrated Flora*; and when *Juncoides* (or *Luzula*) *saltuense* (*J. caroliniae* of the *Illustrated Flora* in great part, not *L. caroliniae* Watson) is pushed back into the European *J. pilosum*. In passing it may be remarked that *Megalodonta* is a far better genus than most of the old sections and subgenera which temporarily parade as genera, and that our woodland *Luzula* is kept distinct from the European *L. pilosa* not only in American manuals but by such a learned European specialist as the late Franz Buchenau.

The catalogue of plants is presented in useful and somewhat original form, giving a statement of the local occurrence of the species in each state or section of state covered, and a paragraph indicating the occurrence or absence of the plant on certain of the geological formations. Broad ranges are also given, substantially as in Britton & Brown, and keys copied from that work are included. This body of information is bound to be much referred to by future workers, for it draws together a vast amount of material from scattered sources.

As a final authority on geographic distribution, however, the Catalogue would have gained greatly if its author had restricted himself less to the dictum of the *Illustrated Flora* and had given recognition to some interpretations not there included. For example, it is difficult to understand, now that the question has been worked out,¹ how a student of plant geography can be content to call our annual *Polygonum glaucum* identical with the southern European frutescent *P. maritimum*, or our endemic *Plantago decipiens* specifically identical with the Old World *P. maritima*. Another unfortunate result of accepting unquestioned the evaluations put upon species by Britton & Brown and the suppression of strongly marked geographic varieties is a great distortion of the geographic truths upon which the generalizations of the book are based. The suppression of *Scirpus Smithii* Gray, as a pure synonym of *S. debilis* Pursh, for example, will appeal to no discriminating student of our sedges; and the absolute merging of Michaux's *Smilax pulverulenta* into *S. herbacea* L., with the statement that the aggregate extends eastward to New Brunswick, obscures an important fact. *S. pulverulenta*, sometimes treated as a variety but recognized as a distinct species by such a painstaking and cautious student as Dr. Witmer Stone, does not occur either in New England or New Brunswick. Similarly, the failure to distinguish

¹ See *RHODORA*, xv. 69-71 (1913).

many other species and good varieties, presumably because they are not recognized in the *Illustrated Flora*, throws an unfortunate shadow of uncertainty over any conclusions which may be drawn from the floristic data. The same obedient acceptance of only such species as are registered in the *Illustrated Flora* gives us anomalies like the following. On pages 265 and 266, *Salix squamata* Rydb. is numbered and entered regularly as a sound species, but with the comment, "distribution and specific status . . . not fully understood," which is a delicate way of quoting Britton's "probably a state of the preceding species [*S. discolor*]"; but on page 283, *Urtica Lyallii* Watson "is omitted from the list because its specific and distributional status are open to question."

A flora of so large an area, and especially one upon which many scattered notes have been published, is necessarily difficult to cover with completeness, and it is natural that some perfectly good records have been overlooked. We do not find *Juncus conglomeratus* in the Catalogue, although it is geographically one of the most interesting plants of the flora covered (see Fernald & Wiegand, RHODORA, xii. 85, 86; Bissell, RHODORA xiii. 31; Fernald, ibid., 140; Stone, Pl. so. N. J. 330). *Equisetum scirpoides*, a member of the Canadian flora which extends southward into Litchfield County, Connecticut, is not definitely admitted to the Catalogue but called a "waif," thus throwing this indigenous woodland plant into the limbo with the rubbish-heap *Cycloloma*, *Beta*, and *Spinacea!* *Luzula campestris*, var. *echinata* (*Juncoides echinatum* Small) occurs in New Jersey and Pennsylvania (see RHODORA, xv. 42), and *Scirpus Peckii* is found in Connecticut (see RHODORA, xv. 98).

One of the most valuable services a compiler of a local catalogue can render is finally to dispose of old and somewhat doubtful records, or at least to take note of and indicate the present knowledge of such cases. Mr. Taylor has performed this service in several instances: *Triglochin palustris*, *Aletris aurea*, *Smilax Bona-nox*, etc.; but we miss from the list of such accountings a number of species formerly reported from the area. For instance, *Phorodendron flavescens*, reported from Staten Island (see Britton, Bull. Torr. Bot. Cl. xi. 76); a cultivated fern, thought to be an *Asplenium*, reported by Dr. Britton in 1897 as a notable case of "naturalization" (see Bull. Torr. Bot. Cl. xxiv. 588); *Pteris tremula* and *Dryopteris patens*, reported in 1897 as "naturalized" in New York City (Fern Bull. vi. 10); and *Polypodium polypodioides*, reported in 1898 as found on Staten Island in 1896 (Fern Bull. vi. 54).

In reading the Introduction to the book, which is, after all, quite as important as the Catalogue proper, for in it are the generalizations, it is impossible to avoid the impression that the author is floundering in water too deep for him. A thoroughly satisfactory correlation of the present distribution of our flora with the geological history of the continent is something to strive for, but it involves so intimate a

knowledge of the rapidly altering geological conceptions that few, if any, thorough botanists can be in position to offer more than tentative explanations. This Mr. Taylor clearly realized. But the first fundamental requirement for satisfactory generalization upon the origin of a flora is a profound and thoroughly exact knowledge of the plants, their habitats and ranges; and the second fundamental requirement should be precision in the exacting art of compilation. These requirements have, apparently, not been sufficiently realized either by the author or his advisors. At least, it is somewhat startling to find, on page 4, in the list of characteristic *bog* plants *Panicum linearifolium* and *Aster spectabilis* listed along with the real bog species *Arethusa bulbosa* and *Sarracenia purpurea*. To be sure, in the Catalogue we are told that *Panicum linearifolium* occurs in "dry soil" (p. 109) and *Aster spectabilis* in "dry sandy soil" (p. 612); but these correct statements of habitat were borrowed literally from Britton & Brown, not, it would seem, from the author's experience.

On page 5 begins a long list of "Plants Found Exclusively North of the Moraine in Our Area," introduced by a paragraph from which the inference is, that somehow this essentially northern flora has been thus delimited in its range through "the profound influence of the continental glacier." The list contains, however, such examples as *Cryptogramma Stelleri* and *Arabis viridis*, which occur in sheltered crevices or recently formed talus, chiefly of limestones and traps, and are in nowise inhabitants of glacial soils; dozens of species (such as *Abies balsamea*, *Sparganium minimum*, *Carex diandra*, *C. novae-angliae*, *Xyris montana*, etc., etc.) abounding in the woodlands, ponds or sphagnous bogs of the Magdalen Islands which "exhibit the most remarkable non-glaciated condition of any part of the eastern provinces of Canada";¹ and several species (*Trisetum spicatum*, *Juncus trifidus*, etc.) which are found on the high unglaciated Torngat Mountains of Labrador.² Incidentally, it may be noted that the "*Juncus trifidus*" of Taylor's Catalogue is the var. *monanthus*, by some European students treated as a distinct species and in this country occupying a strikingly different range from true *J. trifidus*; but how these plants and some scores of others in the enumeration (including the Dwarf Mistletoe, parasitic on Spruces and Larches) have had their present distribution determined by "the profound influence of the continental glacier" is not made clear.

In the long list just referred to Taylor indicates by an asterisk those plants which "have been found only at elevations in excess of 1,000 ft." This subgroup contains such plants as *Carex castanea* ("only . . . from Salisbury, Conn.") — p. 202); *Ledum groenlandicum* ("CONN. North-

¹ Chalmers, Geol. Surv. Can., Ann. Rep., n. s. vii. 48M (1895).

² "I was able to confirm Dr. Robert Bell in the proof . . . that an overwhelming general glaciation of the Torngats, such as occurred in the White, Green, and Adirondack Mountains, did not take place in the last glacial epoch." — Daly, Bull. Geogr. Soc. Phila., iii. 210 (1902).

eastern Litchfield Co., N. Y. Pine Plains, Dutchess Co., etc.— p. 488); *Valeriana uliginosa* ("known in our area only from Pine Plains, Dutchess Co., a region with . . . an elevation of about 1,000 ft." — p. 582); and *Petasites palmata* ("Localized in our area near Salisbury, Conn., at elevations of about 1,500 ft." — p. 634). The inaccuracy of the author's work and its consequent lack of finality are indicated when we view the real facts: that the Connecticut stations for *Carex castanea* at Salisbury (and also at Canaan — see Cat. Fl. Pl. Ct. 419) are in the alluvium of the Housatonic River at an altitude of about 700 (not 1,000 or 1,500) feet; that the Connecticut stations for *Ledum* are at an altitude between ~~100 and 200~~ (not "in excess of 1,000") feet; that the Pine Plains stations for *Ledum* and *Valeriana* are, according to their discoverer, L. H. Hoysradt, in marshes "a little lower than the village, which is about 300 [not '1,000'] feet above . . . the sea" (Bull. Torr. Bot. Cl. vi. 53); and that the Salisbury station for *Petasites* is at an altitude below 600 (not "about 1,500") feet.

Other long lists, quite as carelessly compiled, are made the basis of generalizations. How unfortunate that, before publication, these lists were not carefully scrutinized by someone with a large outlook upon our flora! Thus, on pages 14–17 is a list of "Southern Species Reaching Their Northern Distribution Point Within the Range of This Book." Many of the species are properly placed in the list, but about 30 of them extend northeast of the area covered. For instance, *Potamogeton confervoides*, abundant in eastern Newfoundland, was known to the late Thomas Morong from Massachusetts, New Hampshire (altitude 3,000 feet) and Maine (see Morong, Mem. Torr. Bot. Cl. iii. no. 2, 36). The latter facts ought to be familiar to the author, who was selected as competent to recast Morong's manuscript on *Potamogeton* for the *North American Flora*. Publications, perhaps not so intimately known to the author, but as readily accessible, should have shown him, to indicate a few cases, that *Juncus aristulatus* reaches Nantucket (Bicknell, RHODORA, vi. 174 and Bull. Torr. Bot. Cl. xxxvi. 6); that *Arenaria caroliniana* reaches Rhode Island (Oakes in Hovey's Mag. xiii. 218; Olney, Bull. Torr. Bot. Cl. v. 38; Sage, RHODORA, xv. 115); or that *Acer carolinianum* (*A. rubrum*, var. *tridens*) reaches Massachusetts (Rehder, RHODORA, ix. 116) and even New Brunswick (Fernald & Wiegand, RHODORA, xii. 110, 140).

Similarly, on pages 18–20, in another extensive compilation of "Northern Species Whose Southerly Distribution Outposts, in the East, are Within Our Area," a glance at the first half-column is sufficient to indicate the same carelessness or lack of accurate knowledge which pervades the book. Here are entered *Lycopodium alopecuroides* and *L. adpressum*, in spite of the fact that in the Catalogue it is stated, with an approximation to correctness, that *L. adpressum* occurs from "Conn. to the Gulf States" (p. 66), thus overlooking its extreme abundance in Rhode Island and Massachusetts; and that *L. alopecuroides* occurs from "N. Y. to Fla., near the coast, west to Miss.

Also in trop. Am." and in New York is known only from "Babylon, L. I." (p. 66), thus disregarding its occurrence on Nantucket (Bicknell, Bull. Torr. Bot. Cl. xxxv. 55), on Staten Island (Clute, Fern Bull. ix. 9), and at Southampton, L. I. (Clute, l. c. xiii. 88).

These illustrations serve sufficiently to indicate the quality of the compilation upon which the generalizations are based, and to suggest that, when in the Preface the author referred to "the incompleteness of our present knowledge," he was presumably speaking editorially. As to the generalizations themselves, they consist largely of an amplification of the author's previously published thesis, that the Pine Barren flora of New Jersey occupies an area (the Beacon Hill formation), which escaped Pleistocene glaciation, and there persisted essentially unchanged through the Pleistocene, while the vegetation of surrounding areas was highly modified. Of the validity of the data and the conclusions on this point the reviewer is not competent to judge; but when the author enters the regions to the northeast of New York city and attempts to generalize without regard to the geological (and often botanical) evidence, he certainly overworks glaciation and lack of glaciation. This tendency has already been commented upon, and the following extract, from page 24, is to the point.

"38. In this connection the distribution of the most remarkable plant of the pine-barrens, *Schizaea pusilla*, is very interesting. It is found only in the pine-barrens and in Nova Scotia and Newfoundland, and is unknown between these points. If Dr. Scharff's recently proposed theory that perhaps parts of Nova Scotia and Newfoundland remained unglaciated through all the period of the Pleistocene is correct, then it is not impossible that *Schizaea* is a relict in the pine-barrens of its southern migration, and that it is also a relict in the north, all the intervening territory having been preempted first by the ice, secondarily by more 'aggressive' plants after the recession of the ice. This is little more than interesting speculation, but Scharff, whether wrong or right in his contention, has opened up a wide field of discussion. It is certainly significant that *Schizaea* is not found in the unquestionably glaciated country, and is found only in the pine-barrens and in the [probably] unglaciated northeast. An almost similar distribution is that of *Aster nemoralis*, which is lacking in the intervening territory between its northern outposts in northern New York and Newfoundland and its southerly stations in New Jersey."

Now, any conclusions based upon the assumptions above quoted are bound to lead diametrically away from the truth. In the first place, an author who supposes that *Schizaea pusilla* made a "southern migration" to New Jersey overlooks the fundamental fact that *Schizaea* is not a boreal, but a Tropical and austral genus. Hooker recognized 26 species and Christensen, though differing slightly in his interpretation, maintains the same number. Of these, 9 are confined strictly to the Southern Hemisphere (Australia, New Zealand, South Africa,

Polynesia, Patagonia, etc.), and 16 occur in the Tropics or the Tropics and southward in the Southern Hemisphere. Absolutely no species is known above latitude 30° N., except *S. pusilla*, which ranges from latitude 40°–50° N.; and this northern species is so close to Gaudichaud's *S. australis* of the Falkland Islands (near Cape Horn) and New Zealand that when La Pylaie described the Newfoundland plant as *S. filifolia* he identified the Gaudichaud material with it. Obviously, then, *S. pusilla* did not originate quite by itself in the boreal regions, antipodally separated from the bulk of the genus (and family, for that matter) and then make a "southern migration" toward the home of its congeners. On the contrary, the status of *S. pusilla* was well diagnosed by Mrs. Britton when she wrote: "It is one of the few remaining survivors of a time when a tropical flora was distributed as far north as Greenland" (Fern Bull. iv. 18). The case of *Schizaea pusilla* is not different in principle from that of *Lygodium palmatum*, *Selaginella apoda*,¹ *Eriocaulon septangulare* and others, *Lachnanthes* (*Gyrotheca*) *tinctoria*, *Podostemum ceratophyllum*, etc., whose relatives are almost wholly in the Tropics or the Southern Hemisphere.

But to return to another feature of Taylor's surmising. Any author who ventures to call Nova Scotia and Newfoundland even "probably" unglaciated shows no familiarity with those regions and a minimum of intimacy with the geological reports covering them. The reports of the Geological Survey of Canada are replete with evidence of the glaciation of Nova Scotia; and even the late J. W. Dawson, who argued strenuously for another explanation of the phenomena, admitted that "The whole surface of the peninsula has been striated and polished" (Dawson, Acadian Geol. ed. 3, 72 (1878)). As to Newfoundland, Chamberlain & Salisbury say: "Newfoundland seems to have been a separate area of glaciation" (Earth History, iii. 336), and Twenhofel states that, "Glacial time saw the island under a sheet of ice" (Am. Jour. Sci., ser. 4, xxxiii. 21).

But the most amazing statement in the paragraph above quoted from Taylor is that in regard to *Aster nemoralis*; because to any experienced field-botanist its inaccuracy is so patent. Local catalogues could not have been consulted in framing this remarkable statement, for *Aster nemoralis* is listed in every New England state except Connecticut. In fact, an examination of the sheets of specimens immediately at hand shows the reviewer this species from 44

¹ *SELAGINELLA apoda* (L.), n. comb. *Lycopodium apodum* L. Sp. Pl. 1105 (1753). *S. apus* Spring in Mart. Fl. Bras. i. pt. 2, 119 (1840).

It is astonishing that the correct name for this common creeping species has not been heretofore assigned to it. Spring, in transferring the plant to *Selaginella* as *S. apus*, took the liberty of altering the Linnean specific name, a practice very common in his time; but certainly *apus* is not the feminine form of a neuter *apodum*. And even though, in violation of all nomenclatorial rules, some people may still persist in using the name *S. apus*, it would be quite inaccurate to ascribe the specific name to Linnaeus who used a different name.

stations in "the intervening territory between its northern outposts in . . . Newfoundland and its southerly stations in New Jersey", from which, according to Taylor, it "is lacking"—in Nova Scotia, Prince Edward Island, New Brunswick, Maine, New Hampshire, Vermont, and Massachusetts; while "its northern outposts in northern New York" are 500 miles south of the real "northern outposts" on Rupert River, entering Hudson Bay. Furthermore, the author seems to have ignored the records from Staten Island, Long Island and Rhode Island. In a single volume (vii.) of the Bulletin of the Torrey Botanical Club occur the following seemingly trustworthy records for *A. nemoralis*: "between River Head and Canoe Place," Suffolk Co., L. I. (E. S. Miller, p. 18); "on the Cretaceous soils of Staten Island" (N. L. Britton, p. 82); "Southern Rhode Island" (W. W. Bailey, p. 98). The fact is, that *Aster nemoralis* has not, as guessed by Taylor, been wiped out between New Jersey and Newfoundland by the ice, nor has it been crowded out by more "aggressive" plants. On the contrary, it *abounds* in the siliceous and granitic areas of eastern and central New England, Nova Scotia, and the Laurentian region of southern Labrador and northern Quebec (all profoundly glaciated); and it does so because it there finds the acid peats in which it delights to grow. But in the extensive basic or calcareous areas of western New England and much of eastern Canada, just as in the more fertile sections of Newfoundland, New York and northwestern New Jersey, it is rare or absent because the lowlands of those areas are mostly too calcareous to suit the plant.

In his effort to make the glaciation or non-glaciation of regions during the Pleistocene the dominant factor in determining the present distribution of southern plants which have reached Newfoundland or Nova Scotia, the author seems to have lost sight of a much more potent factor, namely, the now submerged continental shelf. This ancient extension of the Coastal Plain is hardly mentioned by Taylor. Nevertheless, when carefully considered in connection with really accurate phytogeographic data, it will be found to have played a far more important part in the distribution of Coastal Plain species than is generally recognized.

The reviewer's reason for thus entering at length into a discussion of the Introduction to a book, which, in spite of many admirable points, proves, on examination, to have been written without the painstaking care or the accurate compilation of facts which alone should be the groundwork for scientific deductions, is that he is intensely interested in the phytogeographic problems of northeastern America. And, at the risk of being unpopular, he feels it important, for the advancement of sound scholarship, to protest against the superficial and careless compilations which are so freely being published, even by potentially great institutions. Much inaccurate and unscholarly publication has seriously injured taxonomy; the same tendency intensified has cheapened ecology; and, unless we take the

utmost pains to verify all compilations and to publish only what we have carefully studied and digested, we shall soon cheapen and discredit phytogeography as well. With two such splendid models constantly before him as Stone's *Plants of Southern New Jersey*¹ and the Connecticut Botanical Society's *Catalogue of the Flowering Plants and Ferns of Connecticut*,² it is most unfortunate that the author of the *Flora of the Vicinity of New York* did not rise to the standard of accurate scholarship which has rendered authoritative the pages of those monumental volumes.—M. L. FERNALD.

VIOLA SEPTENTRIONALIS IN BRITISH COLUMBIA.—In the Gray herbarium there are two interesting specimens of *Viola septentrionalis* from along the boundary line between Washington and British Columbia. One was collected "in marshes, Pend Oreille River," by Dr. Lyall, who accompanied the "Oregon Boundary Commission" in 1861; it was sent to Dr. Gray from the Kew herbarium as *V. cucullata*. In Piper's Flora of Washington this is cited³ as *V. cuspidata* Greene — a synonym of *V. sororia* Willd., known no farther northwest than eastern Minnesota. Lyall's specimen is in petaliferous flower, and its strongly ciliate sepals, its lanceolate stipules sparsely bordered with gland-tipped hairs, and its cordate-deltoid leaf plainly mark it as *V. septentrionalis* instead of *V. sororia*.

The second specimen is from the herbarium of the Geological Survey of Canada, no. 63,518, J. M. Macoun collector, June 30, 1902, "alluvial woods flooded in spring, Cascade B. C." — a town on the international boundary only 20 miles west of Dr. Lyall's station. Macoun's plant is in various stages of fruit from cleistogamous flowers, and is in all respects characteristic *V. septentrionalis*, as heretofore known from eastern Ontario to Newfoundland, south to Central New York and southern New England.

If but one of these specimens were in evidence, the suspicion might arise that by some accident the label had become attached to the wrong specimen. But with two specimens from stations only 20 miles apart, collected independently by two expert botanists, the suspicion is inadmissible. The two reports are reciprocally confirmatory. Moreover, for this remarkable extension of range there are numerous

¹ See RHODORA, xiv. 94 (1912).

² See RHODORA, xii. 131 (1910).

³ Contrib. U. S. Nat. Herb. 11: 392.

precedents. We have now a list of about 200 flowering species that extend along the Canadian border across the continent. In the genus *Viola* we may mention *V. adunca*, *V. nephrophylla*, *V. palustris*, *V. renifolia*, and *V. Selkirkii*. It is not improbable that stations intermediate between eastern Ontario and British Columbia will be discovered for *V. septentrionalis*.—EZRA BRAINERD, Middlebury, Vermont.

TWO EXTENSIONS OF RANGE IN GRAMINEAE.—During the past collecting season, I noted the following grasses somewhat outside their recorded ranges:—*BROMUS KALMII* Gray. In low, sandy woods in the valley of the Little Androscoggin River, Oxford, Maine. Apparently not hitherto reported east of Middlesex County, Mass., whence it is recorded, as an introduced plant at Malden, in the Flora of the Boston District (RHODORA, xv. 148). In the same patch of woods at Oxford grows *Lupinus perennis*, also near its northwestern limit there.

PANICUM COMMONSIANUM Ashe. In dry, loose sand at two stations, Dennis, Mass. I am indebted to Prof. Hitchcock for the determination of these specimens. The species probably occurs also in the adjoining town of Harwich, but the plants there were collected too late in the season for certain identification. It is known from Long Island and from three localities in sand-plain regions of Connecticut but, so far as I am aware, has not been previously reported from Massachusetts. Both the Dennis stations were along old and little-used wood-roads. Situations of this general character, where original conditions have been altered and the soil more or less disturbed, offer favorable ground for the growth of certain species of *Panicum*. *P. strictum* Pursh (*P. depauperatum* Muhl.) and species of the *huachucae* alliance often flourish mightily in recent clearings or where woods have been burned over. On Cape Cod there are many old excavations from which sand for the making of cranberry bogs has been taken, and the sides and bottoms of these sometimes furnish good *Panicum* collecting. The only stations for *P. umbrosum* LeConte (*P. Ashei* Pearson) and *P. barbulatum* which I have seen on the Cape are in such excavations.—C. A. WEATHERBY, East Hartford, Connecticut.

A NORTHERN SOLIDAGO IN THE WHITE MOUNTAINS.—To the steadily increasing number of northern plants found in the White Mountains may now be added *Solidago rugosa*, Mill., var. *villosa* (Pursh) Fernald.¹ This plant I noticed on 3 September, 1914, growing abundantly in a large clump beside the Mt. Washington Carriage Road below the junction of the Raymond Path (Sargent's Purchase, N. H.), and a specimen (*A. S. Pease*, no. 16305) has been placed in the Herbarium of the N. E. Botanical Club. Further search, for which at the time I had no opportunity, may reveal the plant at other points along the Carriage Road or in similar habitats elsewhere in the region.

—ARTHUR STANLEY PEASE, Urbana, Illinois.

A TERATOLOGICAL SPECIMEN OF *PANICUM AMARULUM* HITCHC. & CHASE.—Three specimens of this species collected at Miami, Florida, in 1904, by J. M. Westgate, have panicles bearing transformed spikelets in which the glumes are multiplied to as many as 15, producing much the appearance of *Glyceria canadensis* or species of *Tridens*. These densely crowded scales are empty, but at the summit of the spikelets are usually one or two staminate florets in form like the staminate florets of the normal spikelets. None of these transformed spikelets bears fertile florets. The panicles bear a few apparently normal spikelets but examination of these shows only staminate florets. This multiplication of glumes is frequently found in species of the allied genus *Ichnanthus* but we have not before observed it in any species of *Panicum*.—AGNES CHASE, Department of Agriculture, Washington, D.C.

¹ The seventh edition of Gray's Manual, 794, gives the range of this variety as "from Lab. and w. Nfd. to w. Que. and n. Me."



S. F. Blake del.

Fig. A. *SABATIA DIFFORMIS* (L.) Druce. Fig. B. *S. CAMPANULATA* (L.) Britton. Fig. C. *S. OBTUSATA* Blake.

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